



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|--------------------|
| 10/723,062 | 11/26/2003 | Han Xiong Xiao | GXA 002A | 8634 |
| 23408 | 7590 | 03/18/2008 | EXAMINER | |
| GARY C. COHN, PLLC 1147 NORTH FOURTH STREET UNIT 6E PHILADELPHIA, PA 19123 | | | | MCCLENDON, SANZA L |
| ART UNIT | | PAPER NUMBER | | |
| 1796 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 03/18/2008 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/723,062 | XIAO, HAN XIONG | |
| | Examiner | Art Unit | |
| | Sanza L. McClendon | 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 17 December 2007.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 9,13-15 and 18-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 9,13-15,18 and 19 is/are rejected.

7) Claim(s) 20-22 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the Amendment received on December 17, 2008, the examiner has carefully considered the amendments. The examiner acknowledges the cancellation of claims 11-12 and 16-17.

Response to Arguments

Applicant's arguments filed December 17, 2007 have been fully considered but they are not persuasive.

Applicant appears to be relying on the amendment to the claims to overcome the currently applied rejections. However, applicant's amendment to the claims has overcome the rejection of claims 9, 11, 14-16, and 18-19 under 35 USC 102 (b) as being anticipated by Themistoklis (3,758,427). Themistoklis fails to teach the instantly claimed functionalized tung oil, which is a reaction product of tung oil with a polyol having at least 3 primary hydroxyl groups and a melting temperature of 220 0C or below.

Applicant, additionally, appears to argue cited art, Seiner et al (3,318,828) and Milligan et al (3,412,054) fails to anticipate the instantly claimed invention because there are too many selections (possible combinations) of polyols and oils to obtain the functionalized oils of the present invention. For example, one of ordinary skill in the art using Seiner et al would have 143 possible combinations to combine before, or if at all, applicant's combination would be obtained. As well as having only one choice of a polyol having a melting temperature of 220 0C or below, therefore also making it un-obvious and thusly, distinguished over the prior art. Regarding the rejection of claims over Milligan et al, applicant argues the constituent fatty acids are obtained fro the oil and used as a starting material. For example, in claim 1 said fatty acid can be directly reacted with the polyisocyanate or said fatty acid can be pre-reacted with the defined acid optionally in the presence of a polyol before reacting with said polyisocyanate. Additionally, there are only two possible polyols out of 12 that meet applicant's melting temperature. Therefore, Milligan et al does not render the instant invention obvious, also. The examiner respectfully disagrees.

In the case of Seiner, the examiner agrees that Seiner no longer anticipates. However, the examiner deems Seiner renders the instant invention obvious or at the very least obvious to try. While applicant tries to have the examiner believe that the combination possibilities (143) are too many to render the use of Seiner viable to an artisan to obtain the instant invention, the examiner deems that the possibilities are lower. For example, teaches that drying oils and semi-drying oils are preferred. Therefore the possible fatty acids reduce to 11 (linseed, perilla, tung, dehydrated castor, cottonseed, olive, fish, oticicica and peanut oil) and ten possible polyols to choice from. Seiner additionally, mentions these are preferred because the compositions they produce

have greater utilities, i.e., faster drying times and harder films having excellent abrasion and chemical resistance--see column 2, lines 35-37 and column 1, lines 25-30. It is also well known that drying oils, dry faster than and have harder film resistant properties than semi-drying oils. Therefore, the examiner deems that it is envisioned within the reference, understandable to an ordinarily skilled artisan, that if one wants to obtain a urethane oil that upon curing has excellent film resistant properties, such as chemical and abrasion resistance, as well as, rapid curing times to use drying oils, which brings the possibilities from 11 to 6 (linseed, perilla, tung, dehydrated castor, fish and otticicica). This brings the possible combinations to 60. Additionally, it is known in the art, as suggested by Gauerke (US 1,979,260), the functionalization of tung oil with pentaerythritol, as well as, said functionalization leads to faster drying times. Therefore, it would have been obvious to use a polyol having at least 3 primary hydroxyl groups, as suggested by Gauerke, in a composition as taught by Seiner. The motivation being a reasonable expectation of obtaining a urethane-oil having excellent properties upon curing, as suggested by both Seiner and Gauerke, in the absence of evidence to the contrary and/or unexpected results. Additionally, Seiner does appear to teach functionalization of said fatty acids prior to reaction with said polyisocyanates--see column 3, lines 12-15. Thus, the rejection of claim 9-13 under 35 USC 102 (Please find the newly applied rejection below.

In the case of Milligan, Milligan et al teaches that it is preferred to use triols and/or tetrol to impart the higher functionality in the polymer system because it allows for easier handling of the reaction product used to prepare the polymer--see column 2, lines 53-55. It is also deemed the reaction of the polyol, specified acid and the fatty acid, as pointed out by applicant, in the examples reads on the claimed reaction product since it is applicant's reaction product does not exclude the use of other components in obtaining said reaction product. Additionally, it is envisioned by Milligan to make air-drying coatings--see column 2, lines 30-32, column 3, line 1-2 and lines 41-45, and column 4, lines 61-65. Since it is well-known that drying oils dry faster than semi-drying oils, it would have been obvious for a skilled artisan interested in faster drying times to choose only drying oils from the list of fatty acids taught by Milligan. This would make it a total of 7 choices of fatty acids (dehydrated castor, linseed, otticac, perilla, sardine, soybean and tung). Milligan already teaches it is preferred to use triols or tetrol, of which there are 4 choices. Thus making the possible combinations to 28, which the examiner deems is not unreasonable to render obvious to try. The motivation would have been a reasonable expectation of obtaining a fast curing polyurethane oil composition as suggested by the reference in the absence of evidence to the contrary and/or unexpected results. Since applicant has not established the criticality of using a polyol as defined having a melting temperature of 220 or below, it is deemed that any of the polyols described by Milligan (triol and tetrols) would work just as well, especially since Milligan teaches it will make the reaction products in obtaining said polyurethane oil easier to handle--see column 2, lines 53-55. Please find the rejections below. Note the Milligan rejections has been changed from a 102(b) rejection to a 35 USC

102(b)/35 USC 103(a) rejection. Since said rejections have been modified/changed because of applicant's amendment ("melting temperature 220 or below) the office action will be made final.

Claim Rejections - 35 USC § 102/35 USC § 103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim9, 13-15, and 18-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Milligan et al (3,412,054).

Note please find full explanation of Milligan et al above, which is incorporated by reference herein. Milligan et al teaches water-dilutable polyurethanes. Said polymers are water dilutable by a reaction of an organic polyisocyanate with a 2, 2-di (hydroxymethyl) carboxylic acid. Said acids are prepared from aldehydes that contain at least 2 hydrogen atoms in the alpha position. The acids are incorporated into the polyurethanes by reaction them with a polyisocyanates. It is disclosed that said polyurethanes can comprise air-drying systems, such as by reacting said polyisocyanate and said 2, 2-di (hydroxymethyl) carboxylic acid with one or more olefinic compounds, such as drying oils. Said olefinic drying oils include tung oil, oelosteric acid and punieic acid as examples—see column 3. The formed polyurethane can be made water-dilutable by a water-solubilization method with includes reacting said polyurethane with a basic groups, such as amines and/or ammonium salts. Said polyurethane dispersions are useful as coatings, thus adherent, and printing inks.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seiner (3,318,828) in view of Gauerke (1,979,260).

Please find full explanation of how Seiner et al and Gauerke above. It is herein incorporated by reference in this rejection. . Seiner teaches storage stable isocyanate-modified drying oil a preparation thereof. Said isocyanate-modified drying oils are produced by reacting a drying, semi-drying or non-drying oil or an acid of such oil with a polyol, such as those found in column 2, and then reacting this product with a mono-, di, or higher isocyanate compound, such as those found in column 2. Usually a catalyst such as those found in column 2 to column 3 is used in the process. The drying oils include dehydrated castor oil and tung oil, among others—see column 2.

Allowable Subject Matter

7. Claims 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: see previous office action.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Burrell (Oil & Soap, July 1944) teaches functionalized drying oils, which mentions functionalization of tung oil with a polyol having 3 primary hydroxyl groups. Konen (Oil & Soap, July 1944).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanza L. McClendon whose telephone number is (571) 272-1074. The examiner can normally be reached on Monday through Friday 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 1796

/Sanza L McClendon/

Primary Examiner

Art Unit 1796

SMc